

ATM-T Series
5 DIGITAL MICROPROCESS
TEMPERATURE
(THERMOCOUPLE) ISOLATED
TRANSMITTER

USER'S MANUAL (V1.0)

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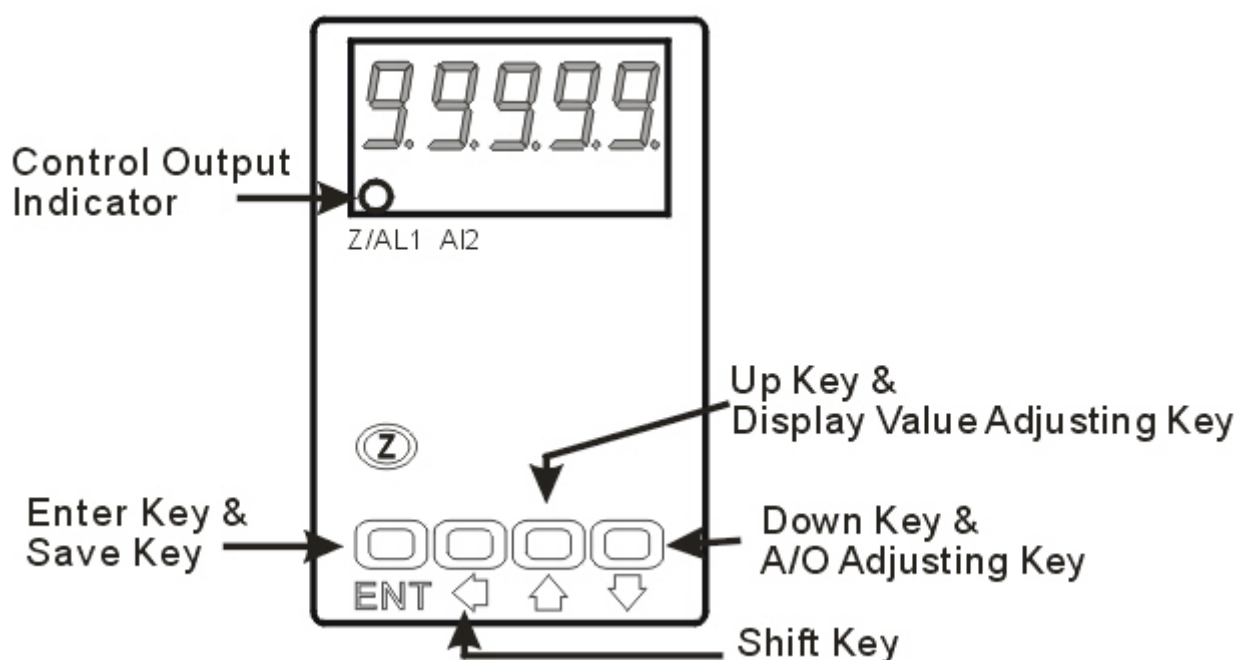
1. Features

- Versatile output selection : 4~20mA , 0~20mA , 0~5V , 0~10V
- Accuracy : $\pm 0.2\%$ F.S., ± 0.5 degree C (cold junction compensation)
- Measuring Temperature (TC) sensors for K, J, E, R, S, B, T types
- Measuring sensors disconnection
- 1 decimal point selectable
- Degree C / degree F units selectable
- 1 control output: ON/OFF proportion programmable
- High stability, non-flammable case (PC), high safety

2. Specifications

- Output selection : 4~20mA , 0~20mA , 0~5V , 0~10V
- Accuracy : $\pm 0.2\%$ F.S.,
 ± 0.5 degree C (cold junction compensation)
- Display Screen : High brightness red LED; 10.16mm(0.4")
- Parameters Setting : Push buttons
- Back Up Memory : EEPROM
- Over Range Indication : doFL/ioFL or -doFL/-ioFL
- Disconnection Indication : Automatic with "OPEn" indication
- Analog Output Resolution : 15 bit
- Output Ripple : $\leq \pm 0.1\%$ F.S.
- Output Response Time : < 250 msec (0~90%)
- Output Capability : Voltage Output: < 20mA
Current Output: < 10V
- Isolation : Input / Output / Power / Case
- Insulation Resistance : > 100M Ω with 500Vdc
- Surge Test : 2KVac/1min
- Input Impedence : Voltage: > 2V for 20K Ω /V; $\leq 2V$ for > 200M Ω
Current: $\geq 0.2A$ at 100mV; < 0.2A at 1V
- Temperature Coefficient : 100ppm/degree C (0~60 degree C)
- Operating Temperature : 0-60 degree C
- Operating Humidity : 20 to 90% RH (non-condensing)
- Storage Temperature : -10-70 degree C
- Storage Humidity : 20 to 90% RH (non-condensing)
- Power Supply : AC 110, AC 220V
- Installation : Socket / Plug-in

3. Front panel & Key functions



| Key Name | Symbol | Descriptions |
|--------------------------------------|------------|---|
| Enter Key & Save Key | ENT | 1. In the measuring status, press this key can enter to parameter pages. 2. In the parameter setting, press this key can save the value & go to next page. |
| Shift Key | ⇐ | 1. In the parameter setting , press this key can move the cursor left. |
| Up Key & Display Value Adjusting Key | ↑ | 1. In the measuring status, press this key for 3 sec can enter to display adjustment of "ZERO" & "SPAN" 2. In the parameter setting, press this key can increase the digits. |
| Down Key & A/O Adjusting Key | ↓ | 1. In the measuring status, press this key for 3 sec can enter to analog output adjustment. 2. In the parameter setting , press this key can decrease the digits. |

1. The following block charts are parameters codes, parameter codes & parameters will alternate flashing if the parameters can be modified.
2. To modify the parameters, please press ⇐ ↑ ↓ , and press ENT to save the parameters after the modification.
3. Please don't forget the new pass code after modification.
4. In any pages, pres ↑ & ↓ , or don't press any keys for 2 minutes that will back to measuring status.

4. General Mode Operating Procedures

| Block Charts | Display | Descriptions | Default |
|---|--|--|---------|
| <pre> graph TD PO([Power On]) --> D1[10000] D1 -- "Press ← for 3 sec" --> D2[dZEro] D2 -- "Press ENT" --> D3[dSPAN] D3 -- "Press ENT" --> D1 D1 -.-> D4[10000] D4 -- "Press ← for 3 sec" --> D5[AZEro] D5 -- "Press ENT" --> D6[ASPA] D6 -- "Press ENT" --> D4 </pre> | Measuring Status | Present value for measurement. | |
| | Display (dZEro) Adjustment (dZEro) | Press ⇐ to select adjusting speed rate, press ↑ ↓ to modify the zero value. PS: To use this function to adjust the real zero value. | 00000 |
| | Display Span Adjustment (dSPAN) | Press ⇐ to select adjusting speed rate, press ↑ ↓ to modify the span value. PS: To use this function to adjust the real span value. | 00000 |
| | Analog Output: "ZERO" & "SPAN" Adjustment | | |
| | Measuring Status | Present value for measurement. | |
| | A/O Zero Adjustment (AZEro) | Press ⇐ to select adjusting speed rate, press ↑ ↓ to modify the A/O zero. PS: To use this function to adjust the real A/O zero. | 00000 |
| | A/O Span Adjustment (ASPA) | Press ⇐ to select adjusting speed rate, press ↑ ↓ to modify the A/O span. PS: To use this function to adjust the real A/O span. | 00000 |

5. Programming Mode Operating Procedures

| Block Charts | Display | Descriptions | Default |
|--------------|----------------------------------|---|--------------------|
| | Measuring Status | Present value for measurement. | |
| | Pass Code (P.Cod) | Press \leftarrow \uparrow \downarrow to enter pass code. | 00000 |
| | | Pass code is correct that will enter to parameter groups. Pass code is wrong that will back to measuring status. | |
| | System Setting Page (SYS) | Press \leftarrow can select A/O setting page. | |
| | Input Type Setting (tYPE) | Pass \uparrow \downarrow to modify the input type. | |
| | Decimal Point Setting (dP) | Pass \uparrow \downarrow to select decimal point (0, 1). EX: if the value shows "0.0" that means the decimal point is 1 digit. | 00000 |
| | Temperature Unit Setting (Unit) | Pass \uparrow \downarrow to modify the unit of linear-speed ($^{\circ}\text{C}/^{\circ}\text{F}$). | $^{\circ}\text{C}$ |
| | Cold Junction Compensation (CJC) | Pass \uparrow \downarrow can switch (on) or (off) cold junction compensation. | no |
| | Display Average Setting (AvG) | Pass \leftarrow \uparrow \downarrow to modify display average (1~99). PS: Please use this function for stable display value when input signal is unstable. | 00020 |
| | Pass Code Setting (CodE) | Pass \leftarrow \uparrow \downarrow to modify pass code (0~19999). PS: Please don't forget the new pass code after modification. | 00000 |
| | Key Lock Setting (LoCK) | Pass \uparrow \downarrow to lock the keys, using key lock function only can view the parameters, but cannot modify any values. PS: no (unlock), YES ("ENT" unlock, others lock). | no |
| | A/O Setting Page (AoP) | Pass \leftarrow can select A/O setting page. | |
| | A/O Polarity Setting (PoLAr) | Pass \leftarrow \uparrow \downarrow To modify output is positive pole or negative pole. PS: Voltage output, NO: positive pole output (0~+10V) YES: positive & negative pole output (-10~+10V) | no |
| | A/O Low Scale Setting (AnLo) | Pass \leftarrow \uparrow \downarrow to adjust A/O low scale to correspond to the display value. EX: A/O is 0~10V, the display is 10.0 to output 0V, this value must be set for 10.0. | 00000 |
| | A/O Hi Scale Setting (AnHi) | Pass \leftarrow \uparrow \downarrow to adjust A/O hi scale to correspond to the display value. EX: A/O is 0~10V, the display is 90.0 to output 10V, this value must be set for 90.0. | 99999 |

6. Error Code of Self-Diagnosis

| Display | Descriptions |
|---------|--|
| | Cold junction is over sensor's (PT100) measuring range (0~100℃). |
| | Cold junction is under sensor's (PT100) measuring range (0~100℃). |
| | Input signal or cold junction is disconnection. |
| | Input signal is over sensor's (T.C) measuring range. |
| | Input signal is under sensor's (T.C) measuring range. |
| | EEPROM reading/writing suffers the interference (about 1 million times). |

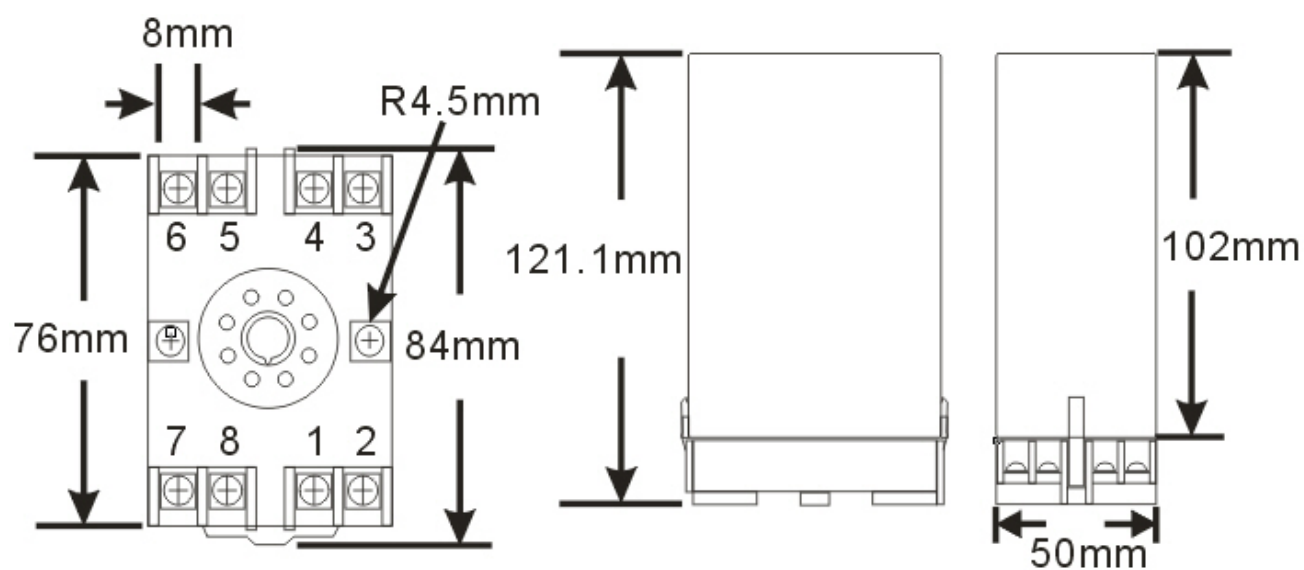
※Please check the wiring connection is correct first, if the problem still exist, please return the meter to the factory.

7. Calibration Operating Procedures

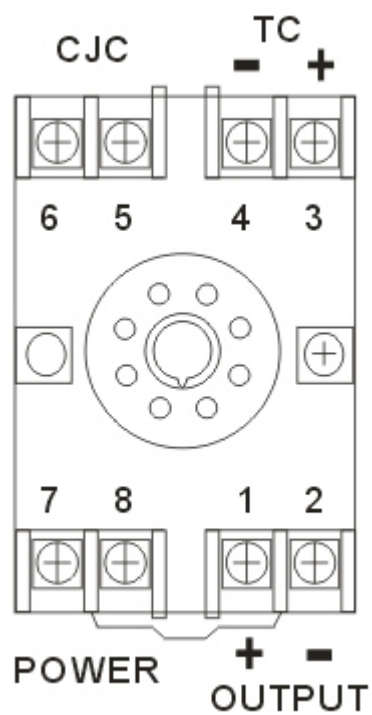
| | Display | Descriptions | Default |
|--|------------------------------------|--|---------|
| | Measuring Status | Present value for measurement Press ENT & < together for 3 sec will enter to calibration operating procedures. | |
| | Input Low Scale Calibration (inLo) | 1. Input standard low scale signal. 2. Press < ↑ ↓ to calibrate input low scale. | |
| | Input Hi Scale Calibration (inHi) | 1. Input standard hi scale signal. 2. Press < ↑ ↓ to calibrate input hi scale | |
| | System Setting Page (SYS) | 1. Finish calibration operating procedures will enter to system setting group. 2. Press ↑ & ↓ together to back to measuring status. | |

Warning: Calibration of this meter requires a standard signal with 0.01% accuracy or better and an external meter with 0.005% accuracy or better.

8. Dimensions



9. Wiring Connection



10. Ordering information

ATM - T - **Code 1** - **Code 2** - **Code 3**

| Code 1 | Input Type | Code 2 | Aux. Power | Code 3 | Analog Output |
|--------|-------------|--------|------------|--------|---------------|
| B | 200~1800°C | A | AC110V | 1 | 4~20mA |
| E | -185~990°C | B | AC220V | 2 | 0~20mA |
| J | -200~760°C | C | DC24V | 3 | 0~5V |
| K | -200~1360°C | | | 4 | 0~10V |
| R | 0~1760°C | | | O | Option |
| S | 0~1750°C | | | | |
| T | -200~395°C | | | | |
| O | Option | | | | |